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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,695	03/30/2004	Tae-Woong Koo	INTEL1510 (P18520)	7238
25227	7590	08/08/2006	EXAMINER	
MORRISON & FOERSTER LLP 1650 TYSONS BOULEVARD SUITE 300 MCLEAN, VA 22102			YU, MELANIE J	
			ART UNIT	PAPER NUMBER
			1641	

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/814,695

Applicant(s)

KOO ET AL.

Examiner

Melanie Yu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-51 is/are pending in the application.
- 4a) Of the above claim(s) 14-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-13 and 45-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date 23052006
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1 June 2006 has been entered.

### ***Claim Rejections - 35 USC § 112***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claim 51 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "at least about 0.5 M" is vague because it is unclear whether the concentration may be less than 0.5 M or must be about 0.5 M but higher than 0.5 M.

### ***Claim Rejections - 35 USC § 103***

3. Claims 1, 3, 4, 8-13 and 47-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kidwell et al. (US 5,384,265) in view of McCormick, III et al. (US 2003/0199653).

Kidwell et al. teach a method for producing metallic colloids comprising: preparing an aqueous solution having room temperature (solution has not yet been heated, and is therefore at room temperature), the aqueous solution including metal cations (platinum chloride) and a reducing agent (ascorbic acid) by dissolving, at room temperature (solution is still not heated), the metal cations and the reducing agent in water (col. 6, lines 56-61; col. 10, lines 28-33); and then heating the aqueous solution with an oven to near boiling at

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85°C (col. 6, lines 61-64; col. 10, lines 33-35), which is encompassed by the recited about 95°C, and an organic molecule (protein) attached to the metallic colloid (col. 6, lines 62-68). Kidwell et al. fail to teach the organic molecule comprising a moiety that has an affinity for the metallic colloid and another moiety having an affinity for a biomolecule.

McCormick, III et al. teach modifying a metallic nanoparticle with cystamine prior to functionalizing the particle with biomolecules for binding (par. 79-81), which contains sulfur, has a molecular weight of less than about 500 Daltons and contains a thiol moiety, in order to form stable, metal nanoparticles in a facile manner.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include on the metallic colloid of the method of Kidwell et al., a nanoparticle modified with a cystamine organic molecule between the metal nanoparticle and the biomolecule with binding affinity for the analyte as taught by McCormick, III et al., in order to provide a nanoparticle with increased stabilization in solution.

With respect to claims 3 and 4, Kidwell et al. teach the aqueous solution heated 90 minutes (col. 10, lines 33-35), which is encompassed by the recited at least 30 and at least 60 minutes.

Regarding claims 49-51, the limitations of claims 49 and 50 are drawn to properties of the final metallic colloids by the method of claim 1. No further method steps appear to be required to produce a higher SERS signal, and it appears that any metallic colloid produced by the method of claim 1 comprises the recited properties. Therefore the metallic colloids produced by the method of Kidwell et al. in view of McCormick III et al. comprise the recited properties. Kidwell et al. also teach the cation and reducing agent concentrations being 0.2 M (col. 6, lines 56-68), which is encompassed by the recited about 0.5 M.

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4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kidwell et al. (US 5,384,265) in view of McCormick, III et al. (US 2003/0199653), as applied to claim 1, further in view of Albrecht et al. (US 6,699,507).

Kidwell et al. in view of McCormick, III et al. teach a reducing agent of ascorbic acid, but fail to teach the reducing agent being citrate or borohydride.

Albrecht et al. teach that a reducing agent may be ascorbic acid, sodium citrate or sodium borohydride (col. 4, lines 58-67), in order to provide formation of colloidal particles.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute for ascorbic acid of Kidwell et al. in view of McCormick, III et al., sodium citrate or sodium borohydride as taught by Albrecht et al. One having ordinary skill in the art would have been motivated to make such a change as a mere alternative and functionally equivalent reducing agent technique and since only the expected reducing agent effect would have been obtained. The use of alternative and functionally equivalent techniques would have been desirable to those of ordinary skill in the art based on the economics and availability of components.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kidwell et al. (US 5,384,265) in view of McCormick, III et al. (US 2003/0199653), as applied to claim 1, further in view of Smith et al. (US 2004/0234958).

Kidwell et al. in view of McCormick, III et al. teach a method for producing metallic colloids and heating using an oven, but fail to specifically teach the use of microwaves.

Smith et al. teach temperature control of heating metallic colloids using a microwave generator (par. 87), in order to provide efficiency when mixing solutions.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the method of Kidwell et al. in view of

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McCormick, III et al., heating using microwaves as taught by Smith et al., in order to provide faster heating.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kidwell et al. (US 5,384,265) in view of McCormick III et al. (US 2003/0199653), as applied to claim 1, further in view of Strohmaier et al. (US 6,640,970).

Kidwell et al. in view of McCormick, III et al. teach a method for producing metallic colloids wherein heating of an aqueous solution is performed by an oven to heat to 85°C, but fail to specifically teach a convection oven.

Strohmaier et al. teach a convection oven to heating a solution to a temperature of 85°C to produce colloids.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use for an oven in the method of Kidwell et al. in view of McCormick III et al., a convection oven as taught by Strohmaier et al. One having ordinary skill in the art would have been motivated to make such a change as a mere alternative and functionally equivalent heating technique and since only the expected heating effect would have been changed and the same heating temperature would have been obtained. The use of alternative and functionally equivalent techniques would have been desirable to those of ordinary skill in the art based on the economics and availability of equipment.

#### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-13 and 47-51 have been considered but are moot in view of the new ground(s) of rejection. Therefore the previous rejections of claims 1-13 have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of applicant's amendment requiring an organic molecule that comprises moiety with an affinity for the metallic colloid and another moiety that has an affinity for a biomolecule.

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Applicant's arguments at pages 9-10 are not persuasive. Applicant argues that Kidwell coats the metallic colloidal particles directly with a biomolecule immediately after manufacturing the metallic colloidal particles, and therefore the colloids of Kidwell cannot be stored for durations beyond several hours or days at room temperatures. However, in response to applicant's arguments, the instant claims do not recite a storage time and do not recite the amount of time between manufacturing metallic colloids and coating a particle directly with a biomolecule. Applicant also argues that Kidwell fails to allow selective attachment of a particular biomolecule as Kidwell's metallic colloid would bind to many different biomolecules when exposed to a plurality of biomolecules. However, in response to applicant's arguments, such a limitation is not recited in the instant claims. Applicant further argues that the term "subsequently" may not be read out of the claims and the reference of Siiman does not teach subsequent heating. However, in response to applicant's arguments, the rejection under Siiman has been withdrawn.

### ***Conclusion***

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Yu whose telephone number is (571) 272-2933. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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Art Unit 1641



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